

Claims

1. A method for producing multifaceted graphitic nanotubes, which process comprises:
 - i) reacting a mixture of CH_4 and O_2 in the presence of a catalyst system comprised of a mixture of at least one Group VIII metal oxide and at least one Group II metal oxide at effective temperatures to produce a mixture of CO and H_2 ; and
 - ii) reacting at least a portion of the mixture of CO and H_2 in the presence of a catalyst system comprised of a mixture of a Group VIII metal component and Group II metal oxide at effective temperatures to grow multifaceted graphitic nanotubes therefrom.
2. The method of claim 1 wherein the Group VIII metal is selected from Fe, Ni, and Co.
3. The method of claim 2 wherein the Group VIII metal is Co.
4. The method of claim 1 wherein the mixture of CH_4 and O_2 is reacted at a temperature from about 350°C to about 1000°C .
5. The method of claim 4 wherein the mixture of CH_4 and O_2 is reacted at a temperature from about 450°C to about 1000°C .
6. The method of claim 1 wherein the temperature at which the graphitic nanotubes are grown is from about 550°C to about 700°C .
7. The method of claim 6 wherein the temperature at which the graphitic nanotubes are grown is from about 600°C to about 700°C .
8. A method for producing multifaceted graphitic nanotubes, which process comprises:

reacting at least a portion of mixture of CO and H_2 in the presence of a catalyst system comprised of a mixture of a Group VIII metal and MgO at effective temperatures to grow multifaceted graphitic nanofibers therefrom.
- 9 The method of claim 8 wherein the Group VIII metal is selected from Fe, Ni, and Co.

10 The method of claim 9 wherein the Group VIII metal is Co.

11 The method of claim 8 wherein the mixture of CH_4 and O_2 is reacted at a temperature from about 350°C to about 1000°C .

12 The method of claim 11 wherein the mixture of CH_4 and O_2 is reacted at a temperature from about 450°C to about 1000°C .

13. The method of claim 8 wherein the temperature at which the graphitic nanotubes are grown is from about 550°C to about 670°C .

14. The method of claim 13 wherein the temperature at which the graphitic nanotubes are grown is from about 600°C to about 650°C .